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EXAMINER

KILKENNY, TODD J

ART UNIT

PAPER NUMBER

1733

DATE MAILED: 06/17/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/079,729

Applicant(s)

GREGG ET AL.

Examiner

Todd J. Kilkenny

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18 and 27-40 is/are rejected.
- 7) ☒ Claim(s) 19-26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3-27-03 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. It is initially noted that in view of applicant's arguments in regard to the references and rejections of record, the claims of the present invention directed to a system are taken to positively require aerated concrete.
2. Applicant's arguments filed 3-27-03 have been fully considered but they are not persuasive.

Applicant's argument that the rejection of record fails to render obvious autoclaving aerated concrete is not persuasive.

In regard to independent claim 18, the primary reference to King suggests casting a gas concrete into convenient sized cubes, but fails to provide any disclosure as to means employed. In view of King's silence, one of ordinary skill in the art would have been motivated to look to the state of the art to find known means employed to form cast cubes comprising gas concrete. The secondary reference to Urmston, directed to aerated (i.e. gas) concrete formation suggests that cubes like the dimensions suggested by King are cast in autoclaves.

In regard to independent claim 27, the primary reference to Urmston positively discloses forming aerated concrete building units wherein the building units are cured in an autoclave. The secondary references are combined with Urmston to render obvious constructing the generic autoclaved aerated concrete "building unit" of Urmston into wallboard, wherein King is the evidence provided that gas concrete is used to form wall

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panels with the motivation being that gas concrete cores in wall panels are lighter in weight and less expensive than conventional drywall. Being motivated by King to employ the aerated concrete of Urmston to form wall panels as the generic "building units", one would be expected to use ordinary skill to form the suggested wall panels of Urmston in view of King and therefore would be expected to look to teachings such as in the additional secondary references. That is, one of ordinary skill in the art would have been motivated to look to the wallboard art to fill in the silence of Urmston and King to form the wall panels as suggested. Emerson has been provided as disclosing to attach face layers onto cement core panels before curing said core panels. Teare and Clear have both been provided as evidence to suggest it is known in manufacturing wallboards panels that cementitious core panels are cut into wallboard lengths after face layers have been attached thereto, but prior to curing. Although, none of the additional secondary references positively disclose autoclaving as curing means, such is already disclosed by the primary reference as the methodology required to cure the aerated concrete building unit.

In regard to independent claim 34, the new ground of rejection, including the newly cited references to Stipek et al (US 4,966,7390), Kato et al (JP 10-6317) and optionally Miller (US 5,350,554) render obvious autoclaving the cementitious boards of Mathieu to cure and cutting prior to autoclaving.

In response to applicant's contention that the Urmston patent has been misinterpreted and only teaches dividing a block of aerated concrete after curing, the examiner disagrees. Urmston suggests dividing after curing when coarse aggregate is

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included in the block of aerated concrete, but also suggests that you can divide before curing (i.e. while in an expanded set state) if coarse aggregate is not included. In view of Urmston suggesting that coarse aggregate is optional (Col. 2, lines 53 - 59), one of ordinary skill would recognize that Urmston does suggest dividing some cores prior to curing.

In response to applicant's contention that the secondary references to Teare and Clear do not teach curing ovens, but rather curing areas, it is noted that Teare and Clear is this regard and applied to suggest cutting means upstream of curing means, regardless of the curing means employed.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over King (US 5,002,620) in view of Urmston (US 4,124,699) and further in view of Mathieu (US 6,187,409). The rejection of record is maintained.

Referring to Figures 4 – 6, in an alternative application, King discloses that lightweight concrete (recognized as aerated concrete) can be used to construct wall panels (60) that are lighter and less expensive than conventional drywall products. In a general description for making the wall panels, King suggests casting a large (8 ft. X 8 ft. X 4 ft) cube of gas concrete. The cubes are then “sawn” into desired thickness at which point a fibrous mat (62) is applied as a face layer. Furthermore, an additional face layer (64, a decorative, acoustical or other desired finish) may be applied over the fibrous mat (Col. 4, line 50 – Col. 5, line 7). While generally teaching to make gas concrete wall panels using an apparatus which comprises a mixer, at least one face layer and a former including a mold tray, and a divider for sawing a cast aerated concrete cube into desired thickness panels. King fails to positively suggest employing an autoclave to cast the molded block and also fails to suggest a cutter for cutting the already divided core panels with the face layers secured thereon.

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As to the autoclave, it would have been obvious to one of ordinary skill in the art to use an autoclave to cure the gas concrete materials of King since autoclaves are commonly used in the art to cure aerated concrete as taught by Urmston (Col. 3, lines 18-38).

As to providing a cutter downstream said former for cutting the core material and the at least one face layer secured thereto into a plurality of wallboard or backerboard sheets, King fails to provide any disclosure in regard to an apparatus that continuously secures the at least one layer onto the divided block panels and thereafter provides a cutter so as to effectively cut the panels and the secured face layer thereon in a continuous manner into desired lengths of wallboards. However, it is considered to be known to produce wallboards in a continuous manner and thereby apply a face layer from a face layer supply to cementitious cores, wherein after the core has been cured and the face layers are secured thereon, the core material is transversely cut to form appropriately sized wallboards, as evidenced for example by Mathieu (Col. 32, lines 4 – 14).

It would have been obvious to one of ordinary skill at the time of the invention to recognize the well known manufacturing benefits of continuous processing in the production of wallboards and therefore continuously secure a face layer from a face layer supply to a plurality of divided core panels of King, wherein after the cured panels have at least one face layer secured thereon the panels are face layers are transversely cut to form appropriately length wallboard so as to achieve a finished product

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comprising both the gas concrete core and the at least one face layer having the matched desired dimensions as is known in the art as suggested by Mathieu.

5. Claims 27 – 30 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Urmston (US 4,124,669) in view of King (US 5,002,620), Emerson (US 1,439,954), Mathieu (US 6,187,409), Teare (US 4,298,413) and Clear (US 4,203,788). The rejection of record is maintained

Urmston teaches an aerated concrete process wherein lightweight concrete units are produced from a mix including an aerated cementitious material by inserting the mix into a mould and allowing the mix to set into a block. Concrete units can be produced from said block by dividing the block into slices by multiple wires after the material has expanded and set and thereafter curing the units by autoclaving. Urmston fails to suggest that the sliced aerated concrete units can be used to form wallboard panels.

As evidenced by both King (see Col. 4, line 50 – Col. 5, line 8) and Mathieu (Col. 1, lines 1 – 26; Col. 17, line 66 – Col. 18, line 9) it is known in to produce wallboards or backerboards comprising cores of air-entrained or gas concrete.

Furthermore, in forming wall panels, King teaches applying a fibrous mat and decorative finish to the gas concrete core. King fails to positively suggest cutting the core material panels with the fibrous mat thereon to form wall panel sheets and thereafter cure said sheets in an autoclave. However, as already addressed, the primary reference to Urmston teaches that the core cementitious material is autoclaved in forming the final aerated concrete building unit. As to autoclaving after the face layer

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is attached, Emerson is cited as exemplary evidence that it is known to secure face layer meshes to cement core panels while said cement core panels are in a plastic state and thereafter curing said cement panels with face layer to completely harden.

Likewise, Mathieu et al disclose applying the cementitious core composition to the face layers prior to curing. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to form the generic aerated concrete "building units" of Urmston into core panels for wallboards in view of King and Mathieu providing evidence that wallboard and/or backerboards cores are known to comprise air-entrained or gas concrete, wherein King positively discloses that gas concrete can beneficially be used as wall panel core material as such forms lighter and less expensive wall panels than conventional drywall (King, Col. 4, line 68 – Col. 5, line 2). Furthermore, it would have obvious to one of ordinary skill in the art at the time of the invention to secure a face layer onto the building unit of Urmston in forming the wall panel while said building unit is in a plastic state and thereafter autoclaving said building unit with face layer thereon to cure as is known as suggested by Emerson and Mathieu and only the expected wall panel would be formed.

As to cutting the core material panels into the desired wallboard lengths while the face layer is thereon prior to autoclaving, the secondary references to Teare and Clear are cited as exemplary evidence that it is commonly known in the wallboard art to secure face layers to uncured core panels, cut the core panels into desired wallboard lengths and thereafter cure said wallboard panels to finish. It therefore would have been obvious to one of ordinary skill in the art at the time of the invention to carry out

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this sequence of steps (i.e. securing face layer, cutting and then curing) with the sliced building units of Urmston in making the wall panels as motivated to do by King so as to form the desired length wallboard with appropriately matched face layer all in a continuous single operation. One of ordinary skill in the art would have been motivated to cut said building units of Urmston into desired wallboard lengths prior to autoclaving as one of ordinary skill would have readily appreciated cutting while still in a plastic state would be easier than cutting a completely cured and hardened core panel.

As to claims 28 - 30, the secondary references to Mathieu, Emerson, Teare and Clear all suggest providing first and second face layers on respective first and second major surfaces of the core material in making wallboard, wherein Mathieu suggests both paper and moisture-resistant face layers (Col. 22, lines 18 – 42), as are known in the wallboard art.

As to claim 32, the secondary reference to Mathieu discloses securing reinforcing face layers onto the first and second major surfaces wherein securing includes a longitudinal edge face bridging member 36 which extends around the opposing side edges (Col. 21, line 9 – Col. 22, line 17).

As to claim 33, as evidenced by King for example, it is known to include reinforcing fibers (propylene fibers, carbon fibers or other suitable fibrous material) to the concrete mixture (King, Col. 3, lines 21 – 41).

6. Claims 34 – 37 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mathieu et al (US 6,187,409) in view of Urmston (US 4,124,669),

Stipek et al (US 4,966,739; newly cited), Kato et al (JP 10-6317; newly cited) and optionally Miller (US 5,350,554; newly cited).

Mathieu teaches a cementitious panel comprising a cementitious core that is fabric-reinforced by face layers secured on the respective first and second major surfaces of the core (see Figure 12). The core mix according to Mathieu may comprise a cementitious material (i.e. hydraulic cement which is able to set on hydration such as for example Portland cement) and an aggregate component selected from among mineral and/or non-mineral aggregates in particular a lightweight mineral and/or non-mineral aggregate(s). Furthermore, other agents may be added to the cementitious material including an air entraining agent that creates air bubbles within the cementitious core, which when the core is cured define open cells. This disclosure of using an air-entraining agent to form open cells is recognized as defining an aerated core. Mathieu also discloses the core mix may be applied in any desired thickness, for example of values so as to be able to obtain a panel having the standard thickness of plasterboard and positively suggests that the board formed by the panel can be employed as a tile backerboard or a wallboard (Col. 17, line 12 – Col. 18, line 62; Col. 1, lines 12 – 14).

Referring to Figures 18 to 21, Mathieu discloses an apparatus for the preparation of the panel comprising a core mix delivery system, which comprises a mixer (container 192 and agitator 193) and a dispenser (195). The core mix is dispensed adjacent to lower reinforcing mesh (100) as the lower mesh is traveled along by conveyor system (50) and a second top layer (200) of reinforcement mesh is deposited onto the core mix

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(both reading on applicant's face layer) (Col. 26, lines 14 – 28; Col. 29, line 25 – Col. 30, line 8). Mathieu teaches finishing the edges of the panel and then conveying the panel to any known curing station (e.g. a curing oven). After the curing station, Mathieu suggest transferring the panel to a cutting station where the panels are cut to size. Therein, Mathieu fails to positively suggest an autoclave as the curing means and fails to suggest a cutter between the dispenser and the autoclave for cutting an uncured panel into a plurality of wallboards.

Urmston teaches forming building units from aerated concrete and discloses the use of an autoclave as means to cure said aerated concrete building unit.

Stipek et al teach a process for making inorganic boards wherein an endless strip of continuously molded inorganic material is cut into boards, which are thereafter treated in a heating device, such as an autoclave.

Kato et al teach manufacturing a cement board in a continuous process wherein dispensed slurry of cementitious material is cut to form boards and thereafter autoclave cured.

Miller is evidence that it is commonly known in the manufacture of cementitious boards to cut dispensed slurry of cementitious material into panel lengths and thereafter cure (i.e. cut and subsequently cure).

It would have been obvious to one of ordinary skill in the art at the time of the invention to autoclave the panel of Mathieu in view of Mathieu suggesting "any known type of curing station", wherein Urmston is evidence that it is known to autoclave aerated concrete building units as autoclaving provides a high temperature, high

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pressure curing operation which obtains a suitable strength aerated concrete building unit and further in view of the additionally cited secondary references to Stipek et al and Kato et al suggesting autoclaving cementitious boards. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to cut the web of Mathieu into panels and thereafter cure, as such is a common order of steps known in the production of cementitious panels as evidenced again by Stipek et al, Kato et al and optionally Miller, wherein such an order protects the cutting device from the more extreme wear and tear associated with cutting already hardened material.

As to claims 36 and 37, Mathieu discloses that it is possible to provide wide bands on the core sides, wherein these bands can be made of polyethylene, paper, and can also be made of other impervious or semi-impervious material (Col. 22, lines 18 – 42).

As to claims 35 and 39, referring to Figures 7 - 12, the core mix (10) is formed into a generally rectangular shape defining a pair of opposing side edges and a pair of opposing end edges wherein the reinforcement fabric (applicant's at least one face layer) is secured onto the first and second major surfaces and includes longitudinal edge face bridging member 36 which extends around the opposing side edges (Col. 21, line 9 – Col. 22, line 17).

7. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mathieu (US 6,187,409) in view of Urmston (US 4,124,669), Stipek et al (US 4,966,739; newly cited), Kato et al (JP 10-6317; newly cited) and optionally Miller (US 5,350,554; newly

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cited) as applied to claim 34 above, and further in view of Pace (US 4,154,040) and/or Lawlis et al (US 4,065,333).

As to claim 38, it appears that Mathieu suggest an edge finisher, but fails to positively suggest a bevel shaper for beveling the cementitious core of the panel. However, as evidenced by both Pace and/or Lawlis it is known to bevel cementitious panels to be employed as backerboards (Pace; Col 1, lines 47 – 50) and/or to be employed as wallboards (Lawlis, Col. 1, line 67 – Col. 2, line 2; Fig 1) so as to enable easier installation of the panel. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ a bevel shaper to the apparatus of Mathieu as means to enable easier installation as is known in the backerboard and wallboard art as evidenced by Pace and Lawlis et al.

8. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mathieu (US 6,187,409) in view of Urmston (US 4,124,669), Stipek et al (US 4,966,739; newly cited), Kato et al (JP 10-6317; newly cited) and optionally Miller (US 5,350,554; newly cited) as applied to claim 34 above, and further in view of King (US (US 5,002,620).

Mathieu suggests adding reinforcement meshes to the already dispensed cementitious slurry, failing to suggest a supply cooperating with the mixer for adding reinforcing fibers to the materials making the aerated concrete core. However, the primary reference to Mathieu does disclose adding additional additives to the core and King suggests that reinforcing fibers can be adding to aerated core blocks all with fibrous face layers (Col. 3, lines 21 – 41). Therefore, it would have been obvious to one

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of ordinary skill in the art at the time of the invention to include a supply of reinforcing fibers that adds reinforcing fibers in a cooperating manner with the mixer as adding reinforcing fibers to a cementitious core is known when forming cellular cementitious building materials as is suggested by King in combination with fibrous face layers so as to reinforce the core cementitious panel even further.

Allowable Subject Matter

9. Claims 19 – 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to claim 19, the prior art of record fails to teach or otherwise render obvious a system for making wallboard or backerboard that joins sheets of core material together in end-to-end relation and thereby secures a face layer to the joined-together sheets while advancing the joined-together sheets of core material along a path of travel.

Claims 20 – 26 all depend from claim 19.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Todd J. Kilkenny** whose telephone number is **(703) 305-6386**. The examiner can normally be reached on Mon - Fri (9 - 5).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on (703) 308-2058. The fax phone numbers

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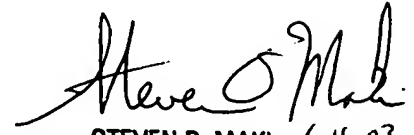
for the organization where this application or proceeding is assigned are (703) 872-9310
for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or
proceeding should be directed to the receptionist whose telephone number is (703) 308-
0661.

TJK

TJK

June 16, 2003


STEVEN D. MAKI 6-16-03
PRIMARY EXAMINER
~~GROUP 1300~~
Av 1733